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Pontus Euxinus 2011

по проблемам водных экосистем,
посвящённой 140-летию Института биологии южных морей
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epifluorescence microscopy were then successfully applied for identifying alive versus dead copepods in a coastal marine ecosystem (Sevastopol bay, the Black Sea), with the potential the new marker has in a study of other zooplankton taxa being investigated.

Irrespective of the dye nature, the assay accuracy depends to a large extent on the dye colour intensity and the subjective assessment of the person who is performing classification of the organisms to live and dead. As against NR, FDA provided much better hue/brightness contrast between the dead (unstained) and live (stained) specimens. To avoid any subjectivity in the classification, we have improved it by: (i) measuring average colours (RGB and/or HSB models) of the organisms, using their digital images and an original image editing software; (ii) classifying the organisms visually to the three classes, Live (L), Dead (D) and Questionable (Q), depending on their colour/brightness; (iii) applying stepwise discriminant analysis to reduce the data dimensionality and build the classification model, with the classes L and D serving as the training set; (iv) classifying the organisms from the pool Q to the classes L or D, using the above discrimination model. This made the analysis highly accurate and subjectivity-free. The new methodological approach involving the FDA-staining protocol and the discriminant analysis appears to be a promising tool for studying zooplankton mortality in the sea.

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MICRO-SPATIAL STRUCTURE OF COMMUNITIES OF HETEROTROPHIC FLAGELLATES (PROTISTA) FROM A SPHAGNUM BOG

Spatial distribution pattern of heterotrophic flagellates within a macroscopically homogenous sphagnum parcel of a transitional bog in the southern taiga was studied. Under investigation was horizontal pattern at different scales (1 cm, 10 cm, 1 m, 10 m) and the vertical heterogeneity of the community in the sphagnum quagmire. 105 species and forms of heterotrophic flagellates were revealed. Predominating were euglenids, less abundant are kinetoplastids and cercomonads. The most numerous appeared to be *Cryptomonas* sp.; *Bodomorpha minima* Hollande, 1942; *Goniomonas truncata* (Fresenius, 1858) Stein, 1887; *Protaspis simplex* Vørs, 1992; *Bodo designis* Skuja, 1948; *B. saltans* Ehrenberg, 1832; *Phyllomitus apiculatus* Skuja, 1948; *Paraphysomonas* sp.; *Petalomonas minuta* Hollande, 1942. More abundant species were characterized by less patchy distribution then less abundant. At a

smaller scale, the community was formed by the species with different degree of patchiness while at larger scales, all the species possess nearly the same distribution pattern. The same number of samples of equal sizes revealed nearly the same species numbers independently of distances between the sample sites, as the samples at each scale differ from each other nearly at the same magnitude. An averaged size of the species aggregations in the community is as large as several centimeters. Such a scale is probably a characteristic size (minimum area) of the community of the sphagnum dwelling heterotrophic flagellates. Rather low environmental heterogeneity within the sphagnum quagmire leads to significant homogeneity of the community at larger scales. Vertical differentiation of the heterotrophic flagellate communities within that quagmire appeared to be very unstable with the time. The same species are characterized by different preferences to the depths at different spatial-temporal loci. Specific vertical distributions and community patterns are formed under different local conditions.

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A STUDY ON SOME PHYSICAL AND CHEMICAL PROPERTIES OF HARINGET STREAM

In this study, some physical and chemical properties of Haringet Stream have been investigated between 2009 May and April 2010. For this purpose, water samples from 7 stations on Haringet Stream have been collected monthly. Amonium nitrogen, nitrite nitrogen, nitrate nitrogen, reactive phosphate and sulphate were determined in waters. The lowest and highest values for, alove parameters were found as 0.01-0.06 mg/L; 0.03-2.12 mg/L; 0.3-8.9 mg/L; 0.02-1.58 mg/L; 8.7-75.7 mg/L respectively. In conclusion, according to water quality criteria for inland water sources, Haringet Stream could be classified as class III in term of nitrate nitrogen, nitrite nitrogen, reactive phosphate values and class I in term of sulphate.